

Appl. No. 09/730,813
Amendment

AMENDMENTS TO THE SPECIFICATION

Please amend the specification at page 35, lines 2-22 to read as follows:

D1
The upper cathode electrode 5 composes a hollow plasma generation electrode of the present invention, a plurality of recesses 5a having circular cross section are disposed on the face of the cathode electrode 5 opposed to the anode electrode 6. The opening width W of this recess 5a, namely the diameter W , is set in a range satisfying either of $W \leq 5L(e)$ or $W \leq 20X$. $L(e)$ is an electron mean free path in respect to atom or molecular species (active species) of the smallest diameter among raw material gas species and electrically neutral atom or molecular species (active species) produced therefrom by decomposition, under the desired plasma generation conditions, and X is a thickness of a sheath layer generated under the desired plasma generation conditions. It is preferable to set the opening width W in a range satisfying $X/20 \leq W$, and further it is preferable to set the opening width W further in a range satisfying also $X/5 \leq W$. Among the plasma generation conditions, if the gas pressure is in a range 10 to 1400 Pa, the diameter W of the recess 5a is set in a range of $10 \text{ mm} < W \leq 100 \text{ mm}$ ~~1 to 100 mm~~, and more preferably it is $10 \text{ mm} < W \leq 20 \text{ mm}$ ~~1 to 20 mm~~. By setting the diameter of the recess 5a in such range, the recess 5a can be made a hollow cathode discharge generation area.

NOTE: In the amendment to the specification, the equation of $10 \text{ mm} < W \leq 100 \text{ mm}$ includes the symbol \leq which is not underlined because the symbol would be obscured due to underlining.